Politics and Mathematics

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I. Politics

This inflammatory title evokes a number of association but none more noble than Mendès France, a name shared by Pierre Mendès France, the statesman, and Michel Mendès France, the mathematician, father and son.

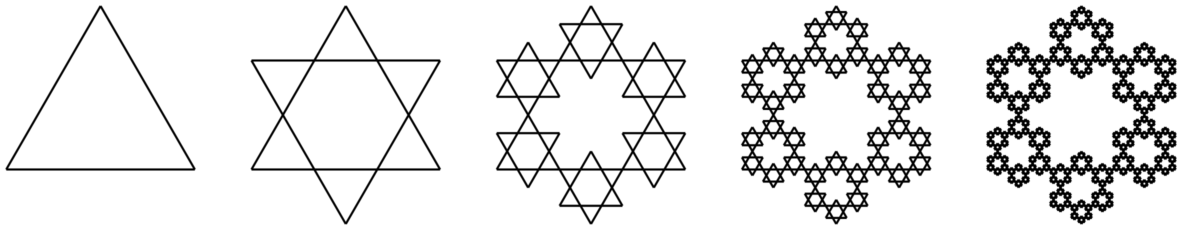
Pierre Mendès France (1907–1982) is best known for heading the government of France in 1954, but his legacy lives on: There is the Institut Pierre Mendès France in Paris (a biography can be found at their web site) and the University of Grenoble was recently named after him. There have also been numerous conferences in his honor, for example, "Pierre Mendès France et la morale politique" in 1989.

I first became aware of Pierre Mendès France at eleven years of age when I had the opportunity of seeing the movie "Le Chagrin et la Pitié," a documentary about the German occupation of France. This film was an important event in France, as it marked the end of the silence about the collaboration (in the United States, "The Sorrow and the Pity" remains largely unknown, except as Woody Allen's favorite film in "Annie Hall").

Pierre Mendès France plays a central role in the movie, and Michel Mendès France has told me that some of his father's charm and wit has been captured. An example that comes to mind is his description of a jailbreak in which his fate rested on the the decision of a young woman to bed her suitor, the young couple discussing terms on the outside wall of the prison. Unfortunately, but more appropriately, the most memorable line belongs to a voluble French aristocrat who explains his decision to join the Waffen S.S. by saying that there was in France " a cosmopolitain element of doubtful origin." In particular, this applies to Mendès France.

Mendès France is not the only such example of Politics and Mathematics in France, reflecting the high regard which mathematics enjoys in this country. One can also cite Raymond and Henri Poincaré. In England, one has Harold and Robin Wilson. However, such a phenomenon would be unprecedented in the United States, the only example coming to mind being Unabomber Theodore Kaczynski.

Politics and Mathematics has other innocuous associations. My obsession with the problems below led to a more symmetric version of the Koch curve (known to Paul Lévy) which generalizes to three and four dimensions: The Fractal of David.



II. Politics and Mathematics

Politics and Mathematics, however, is most often associated with the dark and insidious aspects of the profession (*Mental Moloch!*).

> However, the majority of our contemporary academics disguise what is true with what is false and never surpass the limits of scientific fraud and posturing, using the science they have at their command only for vile material interest. And when they meet a man who sincerely searches for truth, refusing falseness and lies, and rejecting ostentation and fraud, they take him for a fool and ridicule him.

The above was written by Omar Khayyam (1048–1131) in his *Treatise on Algebra.*

> *with the absolute heart of the poem of life butchered*
> *out of their own bodies good to eat a thousand years.*

In the intervening millennium things have certainly improved. However, the iniquities are perpetuated in the yearly ritual of job applications: Like clockwork, mathematicians who pride themselves on their objectivity and rigor, abandon these completely in order to engage in a corrupt beauty pageant unworthy of the fields they hold in contempt.

> *What sphinx of cement and aluminum bashed open*
> *their skulls and ate up their brains and imagination?*

Each country has its own idiosyncratic protocol. In France, there is the CNRS (*Moloch the heavy judger of men!*).

I saw the best minds of my generation destroyed trying to predict then interpret its Delphic decisions. Decisions which are Rhadamanthine when compared to what takes place in the United States (*Moloch whose blood is running money!*).

I saw the best minds of my generation destroyed trying to jump through inflexible hoops whose only purpose is to lobotomize applicants for tenure, a marriage without possibility of divorce. Pallid American nerds and swarthy un–American intellectuals

> *who passed through universities with radiant cool eyes*
> *hallucinating Arkansas*

apply to hundreds of colleges. Conversely, every hole in the wall college gets a thousand applications and, like Scarlett O'Hara at the ball, play their only card to the hilt. Unpublished chairmen decide that candidate A is unworthy because his paper hasn't gotten the final acceptance from Annals, whereas candidate B has just gotten his paper into Inventiones. All this for the privilege of teaching three classes, the most advanced being Reform Calculus using a TI–50 calculator, the expectation being a rapidly diminishing publication rate no longer threatening to the chairman. And the candidates

> *let themselves be fucked in the ass by saintly*
> *motorcyclists, and screamed with joy*

I would like to thank the chairmen of these colleges for never hiring me. By retaining my disenfranchised status, inconsistency in this text has been avoided.

A cursory glance at any mathematics bulletin board reveals that the big summer conferences all have the same speakers. This phenomenon is well documented in the David Lodge novel "Small World" and its *motus operandi* is circularity

> *who loned it through the streets of Idaho seeking vis–*
> *ionary indian angels who were visionary indian angels.*

I would like to thank the organizers of these conferences for never inviting me. By retaining my disenfranchised status, inconsistency in this text has been avoided.

Similarly, editorial boards of journals consist of the "usual suspects" lest there be someone unworthy of tenure or a plenary address on their board

> *the one eyed shrew that does nothing but*
> *sit on her ass and snip the intellectual golden*
> *threads of the craftsman's loom.*

I would like to thank the editors of these journals for never asking me to be editor. By retaining my disenfranchised status, inconsistency in this text has been avoided.

And yet, I continue my impermanent career

> *yacketayakking screaming vomiting whispering facts*
> *and memories and anecdotes*

and enjoy yet another temporary position at the Institution (*a lost battalion of platonic conversationalists*) from which I write this refractory text

> *in humorless protest overturned only one symbolic*
> *pingpong table, resting briefly in catatonia*

But this is nothing compared to what took place in the Soviet Union (*Moloch the crossbone soulless jailhouse*).

I saw the best minds of my generation destroyed by anti–Semitism, denied access to university, and denied mathematical careers: During the 1970's and 1980's it was the completely explicit policy and completely accepted fact that admissions to Soviet mathematics faculties should be based on anti–Semitism. I will never understand how anti–Semitism could have been reconciled with Communist ideology

> *where you accuse your doctors of insanity and*
> *plot the Hebrew socialist revolution against the*
> *fascist national Golgotha*

The most notable example of anti–Semitism was at the Mekh–mat of Moscow State University (*Moloch whose buildings are judgment!*), where exclusion meant giving up mathematics or going to schools like the Institute for Petrochemical and Natural Gas Industry

> *Moloch whose smokestacks and antennae crown the cities!*

Discrimination against candidates was implemented as follows: Examiners gave non–Jews easy problems, while Jews (or suspected Jews) were given "killer problems."

> *Moloch whose breast is a cannibal dynamo!*

But the problems were a sham: In the likely case that candidates were smarter than examiners, examiners cheated them directly. This procedure is well documented and the accounts have never been challenged.

Alexander Shen has published a list of 25 problems posed at the Mekh–mat to which I written up a complete set of solutions. The most egregious aspect of these problems is that, to my knowledge, they are the only example of mathematics used as a political weapon of destruction. The most pathetic aspect of these problems is that the completely preposterous nature of this discrimination escapes those involved, anti–Semites, Jews, and pseudo–passive non–participants: Anti–Semitism was viewed by all as a fact of life.

> *where there are twenty–five–thousand mad com–*
> *rades all together singing the final stanzas of*
> *the Internationale*

These anti–Semitic practices stopped with the fall of Communism.

> *They broke their backs lifting Moloch to heaven!*

But now iniquities are being perpetuated by efforts to supress former oppressors. Because of my solution set, both sides have tried to use me to support their case, mathematical objectivity being taken for political objectivity. Despite the oxymoronic nature of the latter, my views are clear and consistent, and I hope to retain some vestige of rigor.

> *Moloch who entered my soul early!*

My message is simple: **Keep politics and mathematics separate**. In the mathematics profession there are no Jews or anti–Semites, blacks or whites, sexual victims or sexual harassers, Barbarians or Greeks. Punishment of criminals is the responsibility of legal authorities, not the mathematical community. I wish that Nazi mathematicians Bieberbach and Teichmüller were alive today so I could support the restoration of their academic positions.

Moloch in whom I sit lonely!

Dredging up yet another nadir of political mathematics, at the 1920 International Congress of Mathematicians, all German mathematicians were excluded. The mathematical community has a duty never to repeat such mistakes. This text should be read at the 2002 ICM to be held in China (*Moloch the incomprehensible prison!*) currently the world's most popular oppressor.

I am submitting this paper to the Notices of the American Mathematical Society. Fuck you, editors of the Notices, if you find this inappropriate and insulting. What is inappropriate is an entire generation of destroyed lives and careers. What is insulting is your belief that twenty years of injustice must be reported dispassionately with any sign of outrage limited to understated literary allusions.

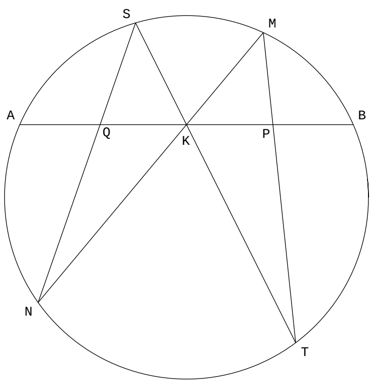
the whole boatload of sensitive bullshit!

If you don't understand this, then go to hell, because hell is what this is about. If you don't understand this, then you are empty and what I am saying is empty: It is easy to be dispassionate if you have no passion. My point is hard but simple: If you hate somebody's guts, but respect his mathematics, then hire him, invite him to conferences, and make him editor of journals.

It is incongruous that, despite their shameful application, the Mekh–mat problems capture the imagination (*Moloch whose name is the mind!*). In contradiction to my conviction that the Mekh–mat problems should be looked at as a whole, I will present the solution to a single problem, posed in 1973, examiners "Lawrentiew, Gnedenko (some other, not old B.V. Gnedenko), and O.P. Vinogradov," and in 1974, examiners "V.F. Maksimov, Falunin" (the sloppy attribution of names of examiners is exactly as was found in Shen's article and as received in his personal mail).

III. Mathematics

Problem 1. *K is the midpoint of a chord AB. MN and ST are chords that pass through K. MT intersects AK at a point P and NS intersects KB at a point Q. Show that $KP = KQ$.*



The problem is better known as the "butterfly theorem" due to the its geometrical configuration, and has a long history, see [16]. After solving the problem, I discussed it with some of my colleagues and Pavol Severa, a postdoc, came up with the following solution in a few minutes:

> The claim can be made obvious using hyperbolic geometry. In the Klein disk, i.e., projective model, the hyperbolic plane is a disk and hyperbolic lines are chords. Let the notation be as in the statement of the problem. If K is an arbitrary point on the hyperbolic line AB then QK and PK are congruent, since a $180°$ rotation about K preserves the picture, except that it exchanges P and Q. It follows that P and Q are equidistant to K in the hyperbolic metric. Now let CD be the diameter of the circle passing through K, then the previous remark shows that the hyperbolic reflection about CD takes P to Q. But since we chose K to be the Euclidean centre of AB, CD is perpendicular to AB, so that the hyperbolic reflection about CD equals the Euclidean reflection about CD. It follows that $|QK| = |PK|$ in Euclidean sense as well.

Of the numerous proofs, see [16], this is the only one requiring no computation. It illustrates two points: That beauty can be found in the most unexpected places and that a beautiful conceptual idea can supplant unmotivated and uninteresting computations.

These two points perfectly describe the mathematics of Michel Mendès France. I first met Michel Mendès France in 1991 at a conference in Bordeaux. Since then, he has been an example and an inspiration for me to continue doing...exactly what I'm interested in at the time.

Indeed, the mathematical work of Michel Mendès France illustrates his power and understanding and reflects his wide interests. This is evident in the list of topics at the conference in his honor in Bordeaux this year [7]. A notable recent work is "Les Nombres Premiers" a book written with Gérald Tenenbaum [15] (soon to appear in English). This book appears in the widely distributed French series "Que Sais-Je?" so one can go to any bookstore in France and, for the price of a magazine, buy what I consider to be the best introduction to the subject.

From looking at his work, one comes to suspect that Michel Mendès France prefers to works on problem that capture his imagination: He does mathematics to exercise his imagination. Mathematicians often get asked the question: "What is mathematics?" More often than not, the question actually consists of two parts, the second being the intended answer which the mathematician is supposed to confirm, whether he likes it or not. However, I suspect that my formulation of this question is one with which Michel Mendès France would have no disagreement:

> *What is mathematics?*
>
> *Isn't it the stuff that dreams are made of?*

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